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SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

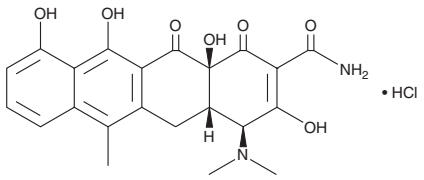
linkedin.com/company/szaboscandic

PRODUCT INFORMATION

Anhydrotetracycline (hydrochloride)

Item No. 10009542

CAS Registry No.: 13803-65-1
Formal Name: 4-(dimethylamino)-1,4S,4aS,5,12,12aS-hexahydro-3,10,11,12a-tetrahydroxy-6-methyl-1,12-dioxo-2-naphthacenecarboxamide, monohydrochloride
MF: $C_{22}H_{22}N_2O_7 \bullet HCl$
FW: 462.9
Purity: ≥98%
UV/Vis.: λ_{max}: 224, 272, 428 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Anhydrotetracycline (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the anhydrotetracycline (hydrochloride) in the solvent of choice, which should be purged with an inert gas. Anhydrotetracycline (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of anhydrotetracycline (hydrochloride) in ethanol is approximately 2 mg/ml and approximately 10 mg/ml in DMSO and DMF.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of anhydrotetracycline (hydrochloride) can be prepared by directly dissolving the crystalline compound in aqueous buffers. The solubility of anhydrotetracycline (hydrochloride) in PBS, pH 7.2, is approximately 0.25 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

The tetracycline repressor (TetR) is a transcriptional regulator which normally binds tightly to its palindromic tetO operator DNA, blocking gene expression.[1] Tet causes the repressor to dissociate from the DNA, allowing transcription to occur. A novel reverse TetR (revTetR) requires tetracycline as a co-repressor to bind tetO and block transcription.[2,3] Anhydrotetracycline (hydrochloride) is a powerful effector in both the TetR and revTetR systems, binding the TetR 35-fold more strongly than Tet.[1,4] Moreover, anhydrotetracycline poorly binds the 30S ribosomal subunit, compared to Tet, so it does not act as a general inhibitor of translation and is a poor antibiotic.[5] Perhaps related to this, the concentration of anhydrotetracycline that inhibits eukaryotic cell growth is more than a 1,000-fold above the dose that alters transcription through TetR.[1]

References

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3. Resch, M., Striegl, H., Henssler, E.M., *et al. Nucleic Acids Res.* **36(13)**, 4390-4401 (2008).
4. Degenkolb, J., Takahashi, M., Ellestad, G.A., *et al. Antimicrob. Agents Chemother.* **35(8)**, 1591-1595 (1991).
5. Rasmussen, B., Noller, H.F., Daubresse, G., *et al. Antimicrob. Agents Chemother.* **35(11)**, 2306-2311 (1991).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM